

CLAIMS

What is claimed is:

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1. A protein, peptide, or peptide mimetic that inhibits human telomerase, which either:
 - a) has a sequence comprising at least 10 consecutive amino acids encoded by SEQ. ID NO:2, or by a polynucleotide that hybridizes under stringent conditions to a polynucleotide consisting of a sequence complementary to SEQ. ID NO:1; but which contains one or more deletions consisting essentially of residues 560-565, residues 930-934, or at least 10 consecutive amino acids from residues 323-450, 637-660, 748-766, 1055-1071, or 1084-1116 of SEQ. ID NO:2; or
 - b) has a sequence consisting essentially of FFYVTE (SEQ. ID NO:3); FYVT (SEQ. ID NO:5), or at least 10 consecutive amino acids from YGVLLKTHCPLRAA (SEQ. ID NO:4).
2. The protein, peptide, or peptide mimetic of claim 1, which has a sequence comprising at least 10 consecutive amino acids encoded by SEQ. ID NO:2, or by a polynucleotide that hybridizes under stringent conditions to a polynucleotide consisting of a sequence complementary to SEQ. ID NO:1; but which contains one or more deletions consisting essentially of residues 560-565, residues 930-934, or at least 10 consecutive amino acids from residues 323-450, 637-660, 748-766, 1055-1071, or 1084-1116 of SEQ. ID NO:2.
3. The protein, peptide, or peptide mimetic of claim 2, which has a sequence comprising at least 25 consecutive amino acids encoded by SEQ. ID NO:2; but which contains one or more deletions consisting essentially of residues 560-565, 930-934, 323-450, 637-660, 748-766, 1055-1071, or 1084-1116 of SEQ. ID NO:2.
4. The protein, peptide, or peptide mimetic of claim 2, which comprises full-length human telomerase amino acid sequence, except for said deletion(s).
5. The protein, peptide, or peptide mimetic of claim 2, which is a dominant negative mutant.
6. The protein, peptide, or peptide mimetic of claim 5, which binds human telomerase RNA component but lacks processive telomerase activity.
7. The protein, peptide, or peptide mimetic of claim 5, which binds human telomeres but lacks processive telomerase activity.
8. The protein, peptide, or peptide mimetic of claim 1, which has a sequence consisting essentially of FFYVTE (SEQ. ID NO:3); FYVT (SEQ. ID NO:5), or at least 10 consecutive amino acids from YGVLLKTHCPLRAA (SEQ. ID NO:4).

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9. The peptide mimetic of claim 8, wherein one or more linkages between consecutive amino acids in the mimetic is $-\text{CH}_2\text{NH}-$, $-\text{CH}_2\text{S}-$, $-\text{CH}_2\text{CH}_2-$, $-\text{CH}=\text{CH}-$, $-\text{C}(=\text{O})\text{CH}_2-$, $-\text{CH}(\text{OH})\text{CH}_2-$, or $-\text{CH}_2\text{SO}-$.
10. A method of inhibiting telomerase catalytic activity, comprising introducing a protein, peptide, or peptide mimetic according to claim 1 into an environment containing telomerase reverse transcriptase.
11. A method of inhibiting telomerase catalytic activity, comprising introducing into an environment containing telomerase reverse transcriptase and telomerase RNA component a means that inhibits binding of the transcriptase to the RNA component.
12. A method of inhibiting telomerase catalytic activity in a cell, comprising expressing in the cell a nucleic acid encoding a protein or peptide according to claim 2.

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